

GOTHIC ARCHITECTURE

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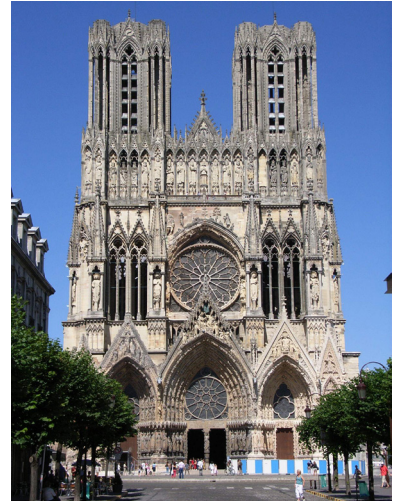
In high school I took the class Art History and instantly became captivated by Gothic Architecture. I have always been fascinated with the way buildings were built. To me Gothic Architecture is unique and beautiful. Usually buildings are plain and square, but a Cathedral has so many attributes that capture the eye. For example, the many different designs of the windows are very attractive and colorful. Another attribute I like is the design of the arches on the interior of the Cathedrals. The last reason I picked this topic was because the history keeps engaged and makes me want to learn more about early architecture.

Gothic Architecture

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“Gothic style” redirects here. For the visual arts, see Gothic art.

Gothic architecture is a style of [architecture](#) that flourished in [Europe](#) during the [High](#) and [Late middle ages](#). It evolved from [Romanesque architecture](#) and was succeeded by [Renaissance architecture](#). Originating in 12th-century [France](#) and lasting into the 16th century, Gothic architecture was known during the period as *Opus Francigenum* (“French work”) with the term *Gothic* first appearing during the later part of the [Renaissance](#). Its characteristics include the [pointed arch](#), the [ribbed vault](#) (which evolved from the joint vaulting of romanesque architecture) and the [flying buttress](#). Gothic architecture is most familiar as the architecture of many of the great [cathedrals](#), [abbeys](#) and churches of Europe. It is also the architecture of many [castles](#), [palaces](#), [town halls](#), [guild halls](#), universities and to a less prominent extent, private dwellings, such as dorms and rooms.



Façade of Reims Cathedral, France

It is in the great churches and cathedrals and in a number of civic buildings that the Gothic style was expressed most powerfully, its characteristics lending themselves to appeals to the emotions, whether springing from faith or from civic pride. A great number of ecclesiastical buildings remain from this period, of which even the smallest are often structures of architectural distinction while many of the larger churches are considered priceless works of art and are listed with [UNESCO](#) as [World Heritage Sites](#). For this reason a study of Gothic architecture is largely a study of cathedrals and churches.

A series of [Gothic revivals](#) began in mid-18th-century England, spread through 19th-century Europe and continued, largely for ecclesiastical and university structures, into the 20th century.

Contents

1 Terminology

2 Definition and scope

3 Influences

3.1 Political

3.2 Religious

3.3 Geographic

4 Architectural background

4.1 Romanesque tradition

4.2 Possible Oriental influence

5 Architectural development

5.1 Transition from Romanesque to Gothic architecture

5.2 Abbot Suger

6 Characteristics of Gothic cathedrals and great churches

6.1 Plan

6.2 Structure: the pointed arch

6.2.1 History

6.2.2 Functions

6.3 Height

6.4 Vertical emphasis

6.5 Light

6.6 Majesty

6.7 Basic shapes of Gothic arches and stylistic character

6.7.1 Lancet arch

6.7.2 Equilateral arch

6.7.3 Flamboyant arch

6.7.4 Depressed arch

6.8 Symbolism and ornamentation

7 Regional differences

7.1 France

7.2 England

7.3 Germany, Poland and the Czech Republic

7.4 Spain and Portugal

7.5 Catalonia

7.6 Italy

8 Other Gothic buildings

9 Gothic survival and revival

9.1 19th- and 20th-century Gothic Revival

9.2 21st-century Gothic Revival

10 Gallery

11 See also

11.1 About medieval Gothic in particular

11.2 About Gothic architecture more generally or in other senses

12 Notes

13 References

14 Further reading

15 External links

The interior of the western end of Reims Cathedral



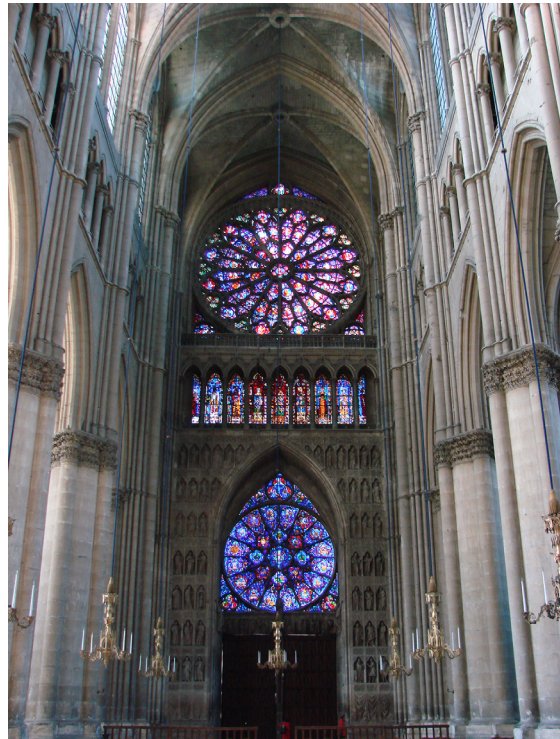
Terminology

Unlike with past and future styles of art, like the [Carolingian](#) style as noted by [French](#) art historian [Louis Grodecki](#) in his work *Gothic Architecture*, Gothic's lack of a set in stone historical or geographic nexus results in a weak concept of what truly is Gothic. This is further compounded by the fact that the technical ornamentation, and formal features of Gothic are not entirely unique to it. Though modern historians have invariably accepted the conventional use of "Gothic" as a label, even in formal analysis processes due to a longstanding tradition of doing so, the definition of "Gothic" has historically varied wildly.^[1]

The term "[Gothic architecture](#)" originated as a [pejorative](#) description.

[Giorgio Vasari](#) used the term "barbarous German style" in his *Lives of the Artists* to describe what is now considered the Gothic style,^[2] and in the introduction to the *Lives* he attributes various architectural features to "[the Goths](#)" whom he holds responsible for destroying the ancient buildings after they conquered [Rome](#), and erecting new ones in this style.^[3] Vasari was not alone among 15th and 16th Italian writers, as [Filarete](#) and [Giannozzo Manetti](#) had also written scathing criticisms of Gothic style, calling it a "barbaric prelude to the Renaissance." Vasari and company were writing at a time when many aspects and vocabulary pertaining to Classical architecture had been reasserted with the Renaissance in the late 15th and 16th centuries, and they had the perspective that the "*maniera tedesca*" or "*maniera dei Goti*" was the antithesis of this resurgent style leading to the continuation of this negative connotation in the 17th century.^[1] [François Rabelais](#), also of the 16th century, imagines an inscription over the door of his [utopian Abbey of Thélème](#), "Here enter no hypocrites, bigots..." slipping in a slighting reference to "Gotz" and

The choir of Reims Cathedral



“Ostrogotz.”^[a] [Molière](#), belonging in the 17th century, also made this note of the Gothic style in the 1669 poem *La Gloire*:^[1]

(French): “...f ade goût des ornements gothiques, Ces monstres odieux de siècles ignorants, Que de la barbarie ont produit les torrents..”

(English): “...the insipid taste of Gothic ornamentation, these odious monstrosities of an ignorant age, produced by the torrents of barbarism...”

—[Molière](#), *La Gloire*

In English 17th-century usage, “Goth” was an equivalent of “[vandal](#)”, a savage despoiler with a Germanic heritage, and so came to be applied to the architectural styles of northern Europe from before the revival of classical types of architecture. According to a 19th-century correspondent in the *London Journal* [Notes and Queries](#):

There can be no doubt that the term ‘Gothic’ as applied to pointed styles of ecclesiastical architecture was used at first contemptuously, and in derision, by those who were ambitious to imitate and revive the Grecian orders of architecture, after the revival of classical literature. Authorities such as [Christopher Wren](#) lent their aid in deprecating the old medieval style, which they termed Gothic, as synonymous with everything that was barbarous and rude.^[4]

The first movements that reevaluated medieval art took place in the 18th century,^[1] even when the [Académie Royale d’Architecture](#) met in [Paris](#) on 21 July 1710 and, amongst other subjects discussed the new fashions of bowed and cusped arches on chimneypieces being employed “to finish the top of their openings. The Academy disapproved of several of these new manners, which are defective and which belong for the most part to the Gothic.”^[5] Despite resistance in the 19th and 20th centuries, such as the writings of [Wilhelm Worringer](#), critics like [Père Laugier](#), [William Gilpin](#), [August Wilhelm Schlegel](#) and other critics began to give the term a more positive meaning. [Johann Wolfgang von Goethe](#) called Gothic the “*deutsche Architektur*” and the “embodiment of German genius,” while some French writers like [Camille Enlart](#) instead nationalised it for France, dubbing it “*architecture français*.” This second group made some of their claims using the chronicle of [Burchard von](#)

Halle that tells of the Church of [Bad Wimpfen's](#) construction "*opere francigeno*," or "in the French style." Today, the term is defined with spatial observations and historical and ideological information.^[1]

Definition and scope

Since the studies of the 18th century, many have attempted to define the Gothic style using a list of characteristic features, principally with the [pointed arch](#),^[b] the vaulting supported by intersecting arches, and the flying buttress. Eventually, historians composed a fairly large list of those features that were alien to both early medieval and Classical arts that includes piers with groups of colonettes, [pinnacles](#), gables, rose windows, and openings broken into many different lancet-shaped sections. Certain combinations thereof have been singled out for identifying regional or national sub-styles of Gothic or to follow the evolution of the style. From this emerge labels such as [Flamboyant](#), [Rayonnant](#), and the English [Perpendicular](#) because of the observation of components like window tracery and pier moldings. This idea, dubbed by [Paul Frankl](#) as "componential," had also occurred to mid 19th century writers such as [Arcisse de Caumont](#), [Robert Willis](#) and [Franz Mertens](#).^[1]



The Cathedral of Saint Gatian, Tours, France

As an architectural style, Gothic developed primarily in ecclesiastical architecture, and its principles and characteristic forms were applied to other types of buildings. Buildings of every type were constructed in the Gothic style, with evidence remaining of simple domestic buildings, elegant town houses, grand palaces, commercial premises, civic buildings, castles, city walls, bridges, village churches, abbey churches, abbey complexes and large cathedrals.

The greatest number of surviving Gothic buildings are churches. These range from tiny chapels to large cathedrals, and although many have been extended and altered in different styles, a large number remain either substantially intact or sympathetically restored, demonstrating the form, character and decoration of Gothic architecture. The Gothic style is most particularly associated with the great cathedrals of Northern France, the Low Countries, England and Spain, with other fine examples occurring across Europe.

Influences

Political

At the end of the 12th century, Europe was divided into a multitude of [city states](#) and kingdoms. The area encompassing modern Germany, southern Denmark, the Netherlands, Belgium, Luxembourg, Switzerland, Austria, Slovakia, Czech Republic and much of northern Italy (excluding [Venice](#) and [Papal State](#)) was nominally part of the [Holy Roman Empire](#), but local rulers exercised considerable autonomy. [France](#), [Denmark](#), [Poland](#), [Hungary](#), [Portugal](#), [Scotland](#), [Castile](#), [Aragon](#), [Navarre](#), [Sicily](#) and [Cyprus](#) were independent kingdoms, as was the [Angevin Empire](#), whose [Plantagenet](#) kings ruled [England](#) and large domains in what was to become modern France. Norway came under the influence of England, while the other Scandinavian countries and [Poland](#) were influenced by trading contacts with the [Hanseatic League](#). [Angevin](#) kings brought the Gothic tradition from France to Southern Italy, while [Lusignan](#) kings introduced [French Gothic](#) architecture to Cyprus.

Throughout Europe at this time there was a rapid growth in trade and an associated growth in towns.^{[7][8]} Germany and the Lowlands had large flourishing towns that grew in comparative peace, in trade and competition with each other, or united for mutual weal, as in the Hanseatic League. Civic building was of great

importance to these towns as a sign of wealth and pride. England and France remained largely [feudal](#) and produced grand domestic architecture for their kings, dukes and bishops, rather than grand town halls for their burghers.

Religious

The [Catholic Church](#) prevailed across Europe at this time, influencing not only faith but also wealth and power. Bishops were appointed by the feudal lords (kings, dukes and other landowners) and they often ruled as virtual princes over large estates. The early Medieval periods had seen a rapid growth in monasticism, with several different orders being prevalent and spreading their influence widely. Foremost were the [Benedictines](#) whose great abbey churches vastly outnumbered any others in France and England. A part of their influence was that towns developed around them and they became centers of culture, learning and commerce. The [Cluniac](#) and Cistercian Orders were prevalent in France, the great monastery at [Cluny](#) having established a formula for a well planned monastic site which was then to influence all subsequent monastic building for many centuries.

In the 13th century [St. Francis](#) of Assisi established the [Franciscans](#), or so-called "Grey Friars", a mendicant order. The [Dominicans](#), another mendicant order founded during the same period but by [St. Dominic](#) in [Toulouse](#) and [Bologna](#), were particularly influential in the building of Italy's Gothic churches.^{[7][8]}

Geographic

From the 10th to the 13th century, [Romanesque architecture](#) had become a pan-European style and manner of construction, affecting buildings in countries as far apart as [Ireland](#), [Croatia](#), [Sweden](#) and [Sicily](#). The same wide geographic area was then affected by the development of Gothic architecture, but the acceptance of the Gothic style and methods of construction differed from place to place, as did the expressions of Gothic taste. The proximity of some regions meant that modern country borders did not define divisions of style. On the other hand, some regions such as [England](#) and [Spain](#) produced defining characteristics rarely seen elsewhere, except where they have been carried by itinerant craftsmen, or the transfer of bishops. Regional differences that are apparent in the great abbey churches and cathedrals of the Romanesque period often become even more apparent in the Gothic.

The local availability of materials affected both construction and style. In [France](#), [limestone](#) was readily available in several grades, the very fine white limestone of [Caen](#) being favoured for sculptural decoration. England had coarse limestone and red [sandstone](#) as well as dark green [Purbeck marble](#) which was often used for architectural features. In [Northern Germany](#), [Netherlands](#), northern [Poland](#), [Denmark](#), and the Baltic countries local building stone was unavailable but there was a strong tradition of building in brick. The resultant style, [Brick Gothic](#), is called “Backsteingotik” in Germany and Scandinavia and is associated with the [Hanseatic League](#). In [Italy](#), stone was used for fortifications, but brick was preferred for other buildings. Because of the extensive and varied deposits of marble, many buildings were faced in marble, or were left with undecorated façade so that this might be achieved at a later date. The availability of timber also influenced the style of architecture, with timber buildings prevailing in [Scandinavia](#). Availability of timber affected methods of roof construction across Europe. It is thought that the magnificent [hammer-beam](#) roofs of England were devised as a direct response to the lack of long straight seasoned timber by the end of the Medieval period, when forests had been decimated not only for the construction of vast roofs but also for ship building.^{[7][9]}



*The Parish Church of St Mary Redcliffe,
Bristol, England*

Architectural background

Gothic architecture grew out of the previous architectural genre, [Romanesque](#). For the most part, there was not a clean break, as there was to be later in [Renaissance Florence](#) with the revival of the [Classical style](#) by [Filippo Brunelleschi](#) in the early 15th century, and the sudden abandonment in [Renaissance Italy](#) of both the style

and the structural characteristics of Gothic.

Romanesque tradition

By the 12th century, [Romanesque architecture](#) (termed [Norman architecture](#) in [England](#) because of its association with the [Norman invasion](#)), was established throughout [Europe](#) and provided the basic architectural forms and units that were to remain in evolution throughout the Medieval period. The important categories of building: the [cathedral church](#), the parish church, the [monastery](#), [castle](#), [palace](#), [great hall](#), [gatehouse](#), the civic building, had been established in the Romanesque period.

Many architectural features that are associated with Gothic architecture had been developed and used by the architects of Romanesque buildings. These include ribbed [vaults](#), [buttresses](#), clustered columns, [ambulatories](#), [wheel windows](#), [spires](#), stained glass windows, and richly carved door [tympana](#). These were already features of ecclesiastical architecture before the development of the Gothic style, and all were to develop in increasingly elaborate ways.^[10]

It was principally the widespread introduction of a single feature, the pointed arch, which was to bring about the change that separates Gothic from Romanesque. The technological change permitted a stylistic change which broke the tradition of massive masonry and solid walls penetrated by small openings, replacing it with a style where light appears to triumph over substance. With its use came the development of many other architectural devices, previously put to the test in scattered buildings and then called into service to meet the structural, aesthetic and ideological needs of the new style. These include the flying buttresses, pinnacles and traceried windows which typify Gothic ecclesiastical architecture.^[7] But while pointed arch is so strongly associated with the Gothic style, it was first used in



The nave vault with pointed transverse arches at Durham Cathedral

Western architecture in buildings that were in other ways clearly Romanesque, notably [Durham Cathedral](#) in the north of [England](#), [Monreale Cathedral](#) and [Cathedral of Cefalù](#) in [Sicily](#), [Autun Cathedral](#) in [France](#).

Possible Oriental influence

The pointed arch, one of the defining attributes of Gothic, was earlier incorporated into [Islamic architecture](#) following the Islamic conquests of Roman Syria and the Sassanid Empire in the Seventh Century.^[7] The pointed arch and its precursors had been employed in [Late Roman](#) and [Sassanian](#) architecture; within the Roman context, evidenced in early church building in Syria and occasional secular structures, like the Roman [Karamagara Bridge](#); in Sassanid architecture, in the parabolic and pointed arches employed in palace and sacred construction.^{[1][2]}

Increasing military and cultural contacts with the Muslim world, including the [Norman conquest of Islamic Sicily](#) in 1090, the [Crusades](#), beginning 1096, and the [Islamic presence in Spain](#),

may have influenced Medieval Europe's adoption of the pointed arch, although this hypothesis remains controversial.^{[13][14]} Certainly, in those parts of the Western Mediterranean subject to Islamic control or influence, rich regional variants arose, fusing Romanesque and later Gothic traditions with

Islamic decorative forms, as seen, for example, in [Monreale](#) and [Cefalù Cathedrals](#), the [Alcázar of Seville](#), and [Teruel Cathedral](#).^[25] However, according to another theory, it is believed that the pointed arch evolved naturally in Western Europe as a structural solution to a purely technical problem, concurrent with its introduction and early use as a stylistic feature in French and English churches.^[13]



Monreale Cathedral, Sicily

Architectural development

Transition from Romanesque to Gothic architecture

The characteristic forms that were to define Gothic architecture grew out of Romanesque architecture and developed at several different geographic locations, as the result of different influences and structural requirements. While barrel vaults and groin vaults are typical of Romanesque architecture, ribbed vaults were used in the naves of two Romanesque churches in Caen, [Abbey of Saint-Étienne](#) and [Abbaye aux Dames](#) in 1120. Another early example is the nave and apse area of the Cathedral of Cefalù in 1131. The ribbed vault over the north transept at [Durham Cathedral in England](#), built from 1128 to 1133, is probably earlier still and was the first time pointed arches were used in a high vault.

Other characteristics of early Gothic architecture, such as vertical shafts, clustered columns, compound piers, plate tracery and groups of narrow openings had evolved during the Romanesque period. The west front of [Ely Cathedral](#) exemplifies this development. Internally the three tiered arrangement of arcade, gallery and clerestory was established. Interiors had become lighter with the insertion of more and larger windows.

The [Basilica of Saint Denis](#) is generally cited as the first truly Gothic building, however the distinction is best reserved for the choir, of which the [ambulatory](#) remains intact. [Noyon Cathedral](#), also in France, saw the earliest completion of a rebuilding of an entire cathedral in the new style from 1150 to 1231. While using all those features that came to be known as Gothic, including pointed arches, flying buttresses and ribbed vaulting, the builders continued to employ many of the features and much of the character of Romanesque architecture including round-headed arch throughout the building, varying the shape to pointed where it was functionally practical to do so.

At the Abbey Saint-Denis, Noyon Cathedral, [Notre Dame de Paris](#) and at the eastern end of [Canterbury Cathedral](#) in England, simple cylindrical columns predominate over the Gothic forms of clustered columns and shafted piers. [Wells Cathedral](#) in England, commenced at the eastern end in 1175, was the first building in which the designer broke free from Romanesque forms. The architect entirely dispensed

with the round arch in favour of the pointed arch and with cylindrical columns in favour of piers composed of clusters of shafts which lead into the mouldings of the arches. The transepts and nave were continued by Adam Locke in the same style and completed in about 1230. The character of the building is entirely Gothic. Wells Cathedral is thus considered the first truly Gothic cathedral.^[24]

Abbot Suger

The eastern end of the Basilica Church of Saint-Denis, built by [Abbot Suger](#) and completed in 1144, is often cited as the first truly Gothic building, as it draws together many of architectural forms which had evolved from Romanesque and typify the Gothic style.

Suger, friend and confidant of the French Kings, [Louis VI](#) and [Louis VII](#), decided in about 1137, to rebuild the great Church of Saint-Denis, attached to an abbey which was also a royal residence. He began with the West Front, reconstructing the original [Carolingian](#) façade with its single door. He designed the façade of Saint-Denis to be an echo of the Roman [Arch of Constantine](#) with its three-part division and three large portals to ease the problem of congestion. The [rose window](#) is the earliest-known example above the West portal in France. The façade combines both round arches and pointed arches of the Gothic style.

At the completion of the west front in 1140, Abbot Suger moved on to the reconstruction of the eastern end, leaving the Carolingian nave in use. He designed a [choir](#) that would be suffused with light.^[1] To achieve his aims, his masons drew on the several new features which evolved or had been introduced to Romanesque architecture, the pointed arch, the ribbed [vault](#), the ambulatory with radiating chapels, the clustered columns supporting ribs springing in different directions and the flying buttresses which enabled the insertion of large clerestory windows.

The new structure was finished and dedicated on 11 June 1144, in the presence of the King. The choir and west front of the Abbey of Saint-Denis both became the prototypes for further building in the royal domain of northern France and in the Duchy of Normandy. Through the rule of the [Angevin dynasty](#), the new style was introduced to [England](#) and spread throughout France, the [Low Countries](#), [Germany](#), [Spain](#), northern [Italy](#) and [Sicily](#).^[8]

Characteristics of Gothic cathedrals and great churches

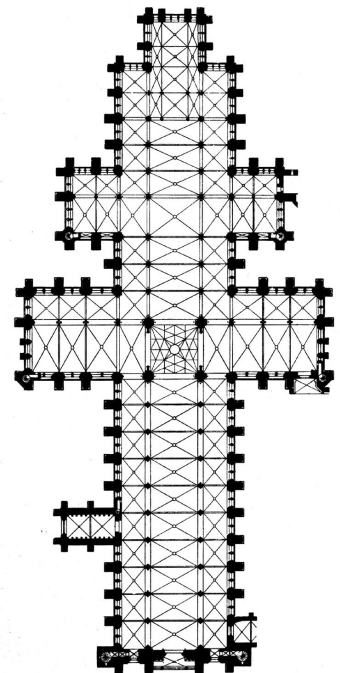
While many secular buildings exist from the Late Middle Ages, it is in the buildings of cathedrals and great churches that Gothic architecture displays its pertinent structures and characteristics to the fullest advantage. A Gothic [cathedral](#) or [abbey](#) was, prior to the 20th century, generally the landmark building in its town, rising high above all the domestic structures and often surmounted by one or more [towers](#) and pinnacles and perhaps tall spires.^{[7][25]} These cathedrals were the skyscrapers of that day and would have been the largest buildings by far that Europeans would ever have seen. It is in the architecture of these Gothic churches that a unique combination of existing technologies established the emergence of a new building style. Those technologies were the [ogival](#) or pointed arch, the [ribbed vault](#), and the [buttress](#).

The Gothic style, when applied to an [ecclesiastical](#) building, emphasizes verticality and light. This appearance was achieved by the development of certain architectural features, which together provided an engineering solution. The structural parts of the building ceased to be its solid walls, and became a stone skeleton comprising clustered [columns](#), pointed ribbed [vaults](#) and [flying buttresses](#).

Plan

Most large Gothic churches and many smaller parish churches are of the [Latin cross](#) (or "cruciform") plan, with a long nave making the body of the church, a transverse arm called the [transept](#) and, beyond it, an extension which may be called the [choir](#), chancel or presbytery. There are several regional variations on this plan.

The nave is generally flanked on either side by aisles, usually single, but sometimes double. The nave is generally considerably taller than the aisles, having [clerestory](#) windows which light the central space. Gothic churches of the Germanic tradition, like [St. Stephen of Vienna](#), often have nave and aisles of similar height



Salisbury Cathedral Plan

and are called *Hallenkirche*. In the South of France there is often a single wide nave and no aisles, as at Sainte-Marie in [Saint-Bertrand-de-Comminges](#).

In some churches with double aisles, like [Notre Dame, Paris](#), the transept does not project beyond the aisles. In English cathedrals transepts tend to project boldly and there may be two of them, as at [Salisbury Cathedral](#), though this is not the case with lesser churches.

The eastern arm shows considerable diversity. In England it is generally long and may have two distinct sections, both choir and presbytery. It is often square ended or has a projecting *Lady Chapel*, dedicated to the [Virgin Mary](#). In France the eastern end is often polygonal and surrounded by a walkway called an ambulatory and sometimes a ring of chapels called a “chevet”. While German churches are often similar to those of France, in Italy, the eastern projection beyond the transept is usually just a shallow apsidal chapel containing the sanctuary, as at [Florence Cathedral](#).^{[7][10][25]}

Pointed Arch

One of the defining characteristics of Gothic architecture is the pointed or *ogival* arch and it is used in nearly all places, a vaulted shape might be called for for structural or decorative consideration, like doorways, windows, arcades, and galleries. Gothic *vaulting* above spaces regardless of size is sometimes supported by richly moulded ribs. Arches of a similar type were used in the [Near East](#) in pre-Islamic^[11] as well as [Islamic architecture](#) before they were structurally employed in medieval architecture. It is thought by some architectural historians that this was the inspiration for the use of the pointed arch in Sicily and France, in otherwise Romanesque buildings, as at Autun Cathedral.^[7] Flying in this notion however is the idea that the pointed arch was a simultaneous and natural evolution in [Western Europe](#) as a solution to the problem of *vaulting* spaces of irregular plan, or to bring transverse vaults to the same height



Durham Cathedral

as diagonal vaults.^{[13][27]} Evidence of this can be found in [Durham Cathedral](#)'s nave aisles, built in 1093. Pointed arches also occur extensively in Romanesque decorative blind arcading, where semi-circular arches overlap each other in a simple decorative pattern and their points an accident in design.^[27]

In addition to being able to its applicability to rectangular or irregular shapes, the pointed arch channels weight onto the bearing piers or columns at a steep angle, enabling architects to raise vaults much higher than was possible in Romanesque architecture.^[7] While, structurally, use of the pointed arch gave a greater flexibility to architectural form, it also gave Gothic architecture a very different and more vertical visual character than Romanesque.

Rows of pointed arches upon delicate shafts form a typical wall decoration known as blind arcading. Niches with pointed arches and containing statuary are a major external feature. The pointed arch lent itself to elaborate intersecting shapes which developed within window spaces into complex Gothic tracery forming the structural support of the large windows that are characteristic of the style.^{[9][10]}

Height

A characteristic of Gothic church architecture is its height, both absolute and in proportion to its width, the verticality suggesting an aspiration to Heaven. A section of the main body of a Gothic church usually shows the [nave](#) as considerably taller than it is wide. In England the proportion is sometimes greater than 2:1, while the greatest proportional difference achieved is at [Cologne Cathedral](#) with a ratio of 3.6:1. The highest internal vault is at [Beauvais Cathedral](#) at 48 metres (157 ft).^[7]

Externally, [towers](#) and [spires](#) are characteristic of Gothic churches both great and small, the number and positioning being one of the greatest variables in Gothic architecture. In Italy, the tower, if present, is almost always detached from the building, as at [Florence Cathedral](#), and is often from an earlier structure. In France and Spain, two towers on the front is the norm. In England, Germany and Scandinavia this is often the arrangement, but an English cathedral may also be surmounted by an enormous tower at the crossing. Smaller churches usually have just one tower, but this may also be the case at larger buildings, such as [Salisbury Cathedral](#) or [Ulm Minster](#), which has the tallest spire in the world, slightly exceeding

that of [Lincoln Cathedral](#), the tallest which was actually completed during the medieval period, at 160 metres (520 ft).

Vertical emphasis

The pointed arch lends itself to a suggestion of height. This appearance is characteristically further enhanced by both the architectural features and the decoration of the building.^[25]

On the exterior, the verticality is emphasised in a major way by the towers and spires and in a lesser way by strongly projecting vertical buttresses, by narrow half-columns called *attached shafts* which often pass through several storeys of the building, by long narrow windows, vertical mouldings around doors and figurative sculpture which emphasises the vertical and is often attenuated. The roofline, gable ends, buttresses and other parts of the building are often terminated by small pinnacles, [Milan Cathedral](#) being an extreme example in the use of this form of decoration.

On the interior of the building attached shafts often sweep unbroken from floor to ceiling and meet the ribs of the vault, like a tall tree spreading into branches. The verticals are generally repeated in the treatment of the windows and wall surfaces. In many Gothic churches, particularly in France, and in the *Perpendicular period* of [English Gothic architecture](#), the treatment of vertical elements in gallery and window tracery creates a strongly unifying feature that counteracts the horizontal divisions of the interior structure.^[25]

Light

Expansive interior light has been a feature of Gothic cathedrals since the first structure was opened. The metaphysics of light in the Middle Ages led to clerical belief in its divinity and the importance of its display in holy settings. Much of this belief was based on the writings of [Pseudo-Dionysius](#), a sixth-century mystic whose book, *The Celestial Hierarchy*, was popular among monks in France. Pseudo-Dionysius held that all light, even light reflected from metals or streamed through windows, was divine. To promote such faith, the abbot in charge of the Saint-Denis church on the north edge of Paris, the [Abbot Suger](#), encouraged architect remodeling the building to make the interior as bright as possible.

Ever since the remodeled [Basilica of Saint-Denis](#) opened in 1144, Gothic architecture has featured expansive windows, such as at [Sainte Chapelle](#), [York Minster](#), [Gloucester Cathedral](#).

The increase in size between windows of the Romanesque and Gothic periods is related to the use of the ribbed vault, and in particular, the pointed ribbed vault which channeled the weight to a supporting shaft with less outward thrust than a semicircular vault. Walls did not need to be so weighty.^{[10][25]}



Sainte Chapelle

A further development was the flying buttress which arched externally from the springing of the vault across the roof of the aisle to a large buttress pier projecting well beyond the line of the external wall. These piers were often surmounted by a [pinnacle or statue](#), further adding to the downward weight, and counteracting the outward thrust of the vault and buttress arch as well as stress from wind loading.

The internal columns of the arcade with their attached shafts, the ribs of the vault and the flying buttresses, with their associated vertical buttresses jutting at right-angles to the building, created a stone skeleton. Between these parts, the walls and the infill of the vaults could be of lighter construction. Between the narrow buttresses, the walls could be opened up into large windows.^[7]

Through the Gothic period, thanks to the versatility of the pointed arch, the structure of Gothic windows developed from simple openings to immensely rich and decorative sculptural designs. The windows were very often filled with [stained glass](#) which added a dimension of colour to the light within the building, as well as providing a medium for figurative and narrative art.^[25]

Majesty

The façade of a large church or cathedral, often referred to as the West Front, is generally designed to create a powerful impression on the approaching worshipper, demonstrating both the might of God and the might of the institution that it represents. One of the best known and most typical of such façades is that of Notre Dame de Paris.

Central to the façade is the main portal, often flanked by additional doors. In the arch of the door, the [tympanum](#), is often a significant piece of sculpture, most frequently *Christ in Majesty* and *Judgment Day*. If there is a central doorjamb or a trumeau, then it frequently bears a statue of the *Madonna and Child*. There may be much other carving, often of figures in niches set into the mouldings around the portals, or in sculptural screens extending across the façade.

Above the main portal there is generally a large window, like that at [York Minster](#), or a group of windows such as those at [Ripon Cathedral](#). In France there is generally a [rose window](#) like that at [Reims Cathedral](#). Rose windows are also often found in the façades of churches of Spain and Italy, but are rarer elsewhere and are not found on the façades of any English Cathedrals. The gable is usually richly decorated with arcading or sculpture or, in the case of Italy, may be decorated with the rest of the façade, with polychrome marble and mosaic, as at [Orvieto Cathedral](#).

The West Front of a French cathedral and many English, Spanish and German cathedrals generally have two towers, which, particularly in France, express an enormous diversity of form and decoration.^{[7][8]} However some German cathedrals have only one tower located in the middle of the façade (such as [Freiburg Münster](#)).

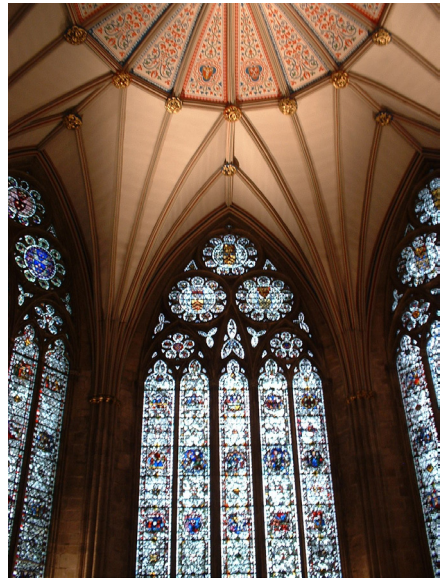
Basic shapes of Gothic arches and stylistic character^[edit]

The way in which the pointed arch was drafted and utilised developed throughout the Gothic period. There were fairly clear stages of development, which did not, however, progress at the same rate, or in the same way in every country. Moreover, the names used to define various periods or styles within Gothic architecture differs from country to country.

Lancet arch

The simplest shape is the long opening with a pointed arch known in England as the lancet. Lancet openings are often grouped, usually as a cluster of three or five. Lancet openings may be very narrow and steeply pointed. Lancet arches are typically defined as two-centered arches whose radii are larger than the arch's span.^[29]

[Salisbury Cathedral](#) is famous for the beauty and simplicity of its Lancet Gothic, known in England as the Early English Style. [York Minster](#) has a group of [lancet windows](#) each fifty feet high and still containing ancient glass. They are known as the Five Sisters. These simple undecorated grouped windows are found at Chartres and [Laon Cathedrals](#) and are used extensively in Italy.^{[7][9]}



York Minster - Equilateral Arch

Equilateral arch

Many Gothic openings are based upon the [equilateral](#) form. In other words, when the arch is drafted, the [radius](#) is exactly the width of the opening and the centre of each arch coincides with the point from which the opposite arch springs. This makes the arch higher in relation to its width than a semi-circular arch which is exactly half as high as it is wide.^[7]

The Equilateral Arch gives a wide opening of satisfying proportion useful for doorways, decorative arcades and large windows.

The structural beauty of the Gothic arch means, however, that no set proportion had to be rigidly maintained. The Equilateral Arch was employed as a useful tool, not as a principle of design. This meant that narrower or wider arches were introduced into a building plan wherever necessity dictated. In the architecture of some Italian cities, notably [Venice](#), semi-circular arches are interspersed with pointed ones.

The Equilateral Arch lends itself to filling with tracery of simple equilateral,

circular and semi-circular forms. The type of tracery that evolved to fill these spaces is known in England as Geometric Decorated Gothic and can be seen to splendid effect at many English and French Cathedrals, notably Lincoln and Notre Dame in Paris. Windows of complex design and of three or more lights or vertical sections, are often designed by overlapping two or more equilateral arches.^[9]

Flamboyant arch

The [Flamboyant Arch](#) is one that is drafted from four points, the upper part of each main arc turning upwards into a smaller arc and meeting at a sharp, flame-like point. These arches create a rich and lively effect when used for window tracery and surface decoration. The form is structurally weak and has very rarely been used for large openings except when contained within a larger and more stable arch. It is not employed at all for [vaulting](#).^[7]



Limoges Cathedral - Flamboyant Arch

Some of the most beautiful and famous traceried windows of Europe employ this type of tracery. It can be seen at [St Stephen's](#) in [Vienna](#), [Sainte Chapelle](#) in Paris, at the Cathedrals of [Limoges](#) and [Rouen](#) in France. In England the most famous examples are the West Window of [York Minster](#) with its design based on the [Sacred Heart](#), the extraordinarily rich nine-light East Window at [Carlisle Cathedral](#) and the exquisite East window of [Selby Abbey](#).^{[7][9]}

Doorways surmounted by Flamboyant mouldings are very common in both ecclesiastical and domestic architecture in France. They are much rarer in England. A notable example is the doorway to the Chapter Room at [Rochester Cathedral](#).^{[7][9]}

The style was much used in England for wall arcading and niches. Prime examples in are in the Lady Chapel at [Ely](#), the Screen at Lincoln and externally on the façade of [Exeter Cathedral](#). In German and Spanish Gothic architecture it often appears

as openwork screens on the exterior of buildings. The style was used to rich and sometimes extraordinary effect in both these countries, notably on the famous pulpit in [Vienna Cathedral](#).^[8]

Depressed arch

The depressed or [four-centred arch](#) is much wider than its height and gives the visual effect of having been flattened under pressure. Its structure is achieved by drafting two arcs which rise steeply from each springing point on a small [radius](#) and then turn into two arches with a wide radius and much lower springing point.^[7]



King's College Chapel - Depressed Arch

This type of arch, when employed as a window opening, lends itself to very wide spaces, provided it is adequately supported by many narrow vertical shafts. These are often further braced by horizontal transoms. The overall effect produces a grid-like appearance of regular, delicate, rectangular forms with an emphasis on the perpendicular. It is also employed as a wall decoration in which arcade and window openings form part of the whole decorative surface.

The style, known as [Perpendicular](#), that evolved from this treatment is specific to England, although very similar to contemporary Spanish style in particular, and was employed to great effect through the 15th century and first half of the 16th as Renaissance styles were much slower to arrive in England than in Italy and France.^[7]

It can be seen notably at the East End of [Gloucester Cathedral](#) where the East Window is said to be as large as a tennis court. There are three very famous royal chapels and one chapel-like Abbey which show the style at its most elaborate: [King's College Chapel, Cambridge](#); [St George's Chapel, Windsor](#); [Henry VII's Chapel at Westminster Abbey](#) and [Bath Abbey](#).^[9] However very many simpler buildings, especially churches built during the wool boom in [East Anglia](#), are fine examples of the style.

Symbolism and ornamentation

The Gothic cathedral represented the universe in microcosm and each architectural concept, including the loftiness and huge dimensions of the structure, were intended to convey a theological message: the great glory of God. The building becomes a microcosm in two ways. Firstly, the mathematical and geometrical nature of the construction is an image of the orderly universe, in which an underlying rationality and logic can be perceived.

Secondly, the [statues](#), sculptural decoration, [stained glass](#) and [murals](#) incorporate the essence of creation in depictions of the [Labours of the Months](#) and the [Zodiac](#)^[h] and sacred history from the Old and New Testaments and Lives of the Saints, as well as reference to the eternal in the [Last Judgment](#) and *Coronation of the Virgin*.

The decorative schemes usually incorporated [Biblical](#) stories, emphasizing visual [typological allegories](#) between [Old Testament](#) prophecy and the [New Testament](#).^[8]

Many churches were very richly decorated, both inside and out. Sculpture and architectural details were often bright with coloured paint of which traces remain at the [Cathedral of Chartres](#). Wooden ceilings and panelling were usually brightly coloured. Sometimes the stone columns of the nave were painted, and the panels in decorative wall arcading contained narratives or figures of saints. These have rarely remained intact, but may be seen at the Chapterhouse of [Westminster Abbey](#).^[9]

Some important Gothic churches could be severely simple such as the [Basilica of Mary Magdalene](#) in Saint-Maximin, Provence where the local traditions of the sober, massive, Romanesque architecture were still strong.

Regional differences

Wherever Gothic architecture is found, it is subject to local influences, and frequently the influence of itinerant stonemasons and artisans, carrying ideas between cities and sometimes between countries. Certain characteristics are typical of particular regions and often override the style itself, appearing in buildings hundreds of years apart.

France

The distinctive characteristic of French cathedrals, and those in Germany and

Belgium that were strongly influenced by them, is their height and their impression of verticality. Each French cathedral tends to be stylistically unified in appearance when compared with an English cathedral where there is great diversity in almost every building. They are compact, with slight or no projection of the transepts and subsidiary chapels. The west fronts are highly consistent, having three portals surmounted by a rose window, and two large towers. Sometimes there are additional towers on the transept ends. The east end is polygonal with ambulatory and sometimes a chevette of radiating chapels. In the south of France, many of the major churches are without transepts and some are without aisles.^[7]

England

The distinctive characteristic of English cathedrals is their extreme length, and their internal emphasis upon the horizontal, which may be emphasised visually as much or more than the vertical lines. Each English cathedral (with the exception of Salisbury) has an extraordinary degree of stylistic diversity, when compared with most French, German and Italian cathedrals. It is not unusual for every part of the building to have been built in a different century and in a different style, with no attempt at creating a stylistic unity. Unlike French cathedrals, English cathedrals sprawl across their sites, with double transepts projecting strongly and *Lady Chapels* tacked on at a later date, such as at Westminster Abbey. In the west front, the doors are not as significant as in France, the usual congregational entrance being through a side porch. The West window is very large and never a rose, which are reserved for the transept gables. The west front may have two towers like a French Cathedral, or none. There is nearly always a tower at the crossing and it may be very large and surmounted by a spire. The distinctive English east end is square, but it may take a completely different form. Both internally and externally, the stonework is often richly decorated with carvings, particularly the capitals.^{[7][9]}

Germany, Poland and the Czech Republic

Romanesque architecture in [Germany](#), [Poland](#) and the [Czech Republic](#) (earlier called [Bohemia](#)) is characterised by its massive and modular nature. This characteristic is also expressed in the Gothic architecture of [Central Europe](#) in the huge size of the towers and spires, often projected, but not always completed.^[4] Gothic design in Germany and [Czech lands](#), generally follows the French formula, but the towers are much taller and, if complete, are surmounted by enormous openwork spires that

are a regional feature. Because of the size of the towers, the section of the façade between them may appear narrow and compressed. The distinctive character of the interior of German Gothic cathedrals is their breadth and openness. This is the case even when, as at Cologne, they have been modelled upon a French cathedral. German and Czech cathedrals, like the French, tend not to have strongly projecting **transepts**. There are also many **hall churches** (*Hallenkirchen*) without clerestory windows.^{[7][25]} In contrast to the Gothic designs found in German and Czech areas, which followed the French patterns, **Brick Gothic** was particularly prevalent in Poland. The Polish gothic architecture is characterized by its utilitarian nature, with very limited use of sculpture and heavy exterior design.



Interior of Madislaw Hall

Spain and Portuga

The distinctive characteristic of Gothic cathedrals of the **Iberian Peninsula** is their spatial complexity, with many areas of different shapes leading from each other. They are comparatively wide, and often have very tall arcades surmounted by low clerestories, giving a similar spacious appearance to the 'Hallenkirche of Germany, as at the Church of the **Batalha Monastery** in Portugal. Many of the cathedrals are completely surrounded by chapels. Like English cathedrals, each is often stylistically diverse. This expresses itself both in the addition of chapels and in the application of decorative details drawn from different sources. Among the influences on both decoration and form are **Islamic architecture** and, towards the end of the period, Renaissance details combined with the Gothic in a distinctive manner. The West front, as at **Leon Cathedral**, typically resembles a French west front, but wider in proportion to height and often with greater diversity of detail and a combination of intricate ornament with broad plain surfaces. At **Burgos Cathedral** there are spires of German style. The roofline often has pierced parapets with comparatively few pinnacles. There are often towers and domes of a great variety of shapes and

structural invention rising above the roof.^[7]

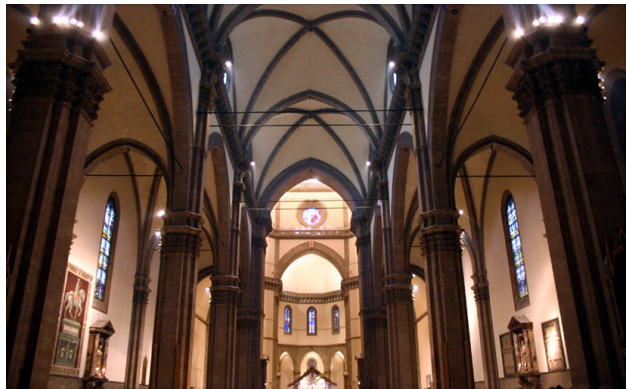
Catalonia

In Catalonia and the territories under its influence (Northern Catalonia in France, the Balearic Islands, the Valencian Country, among others in the Italian islands), the Gothic style suppressed the *transept* and made the *aisle* almost as high as the main nave, allowing it to create very wide spaces, with few ornaments; it is called *Catalan Gothic style* (different than the Spanish or French style).

The most important samples of Catalan Gothic style are the cathedrals of [Girona](#), [Barcelona](#), [Perpignan](#) and [Palma](#) (in Mallorca), the basilica of [Santa Maria del Mar](#) (in Barcelona), the [Basílica del Pi](#) (in Barcelona), and the church of [Santa Maria de l'Alba in Manresa](#).

Italy

The distinctive characteristic of Italian Gothic is the use of polychrome decoration, both externally as marble veneer on the brick façade and also internally where the arches are often made of alternating black and white segments, and where the columns may be painted red, the walls decorated with frescoes and the apse with mosaic. The plan is usually regular and symmetrical, Italian cathedrals have few and widely spaced columns. The proportions are generally mathematically equilibrated,



Florence Cathedral

based on the square and the concept of "*armonia*", and except in Venice where they loved flamboyant arches, the arches are almost always equilateral. Colours and moldings define the architectural units rather than blending them. Italian cathedral façades are often polychrome and may include mosaics in the lunettes over the doors. The façades have projecting open porches and ocular or wheel windows rather than roses, and do not usually have a tower. The crossing is usually

surmounted by a dome. There is often a free-standing tower and baptistry. The eastern end usually has an apse of comparatively low projection. The windows are not as large as in northern Europe and, although stained glass windows are often found, the favourite narrative medium for the interior is the [fresco](#).^[7]

Other Gothic buildings

Synagogues were commonly built in the Gothic style in Europe during the Medieval period. A surviving example is the [Old New Synagogue](#) in Prague built in the 13th century.

The [Palais des Papes](#) in Avignon is the best complete large royal palace, alongside the [Royal palace of Olite](#), built during the 13th and 14th centuries for the kings of [Navarre](#). The [Malbork Castle](#) built for the master of the [Teutonic order](#) is an example of Brick Gothic architecture. Partial survivals of former royal residences include the [Doge's Palace](#) of [Venice](#), the [Palau de la Generalitat](#) in [Barcelona](#), built in the 15th century for the kings of [Aragon](#), or the famous [Conciergerie](#), former palace of the kings of France, in Paris.

Secular Gothic architecture can also be found in a number of public buildings such as [town halls](#), [universities](#), [markets](#) or [hospitals](#). The [Gdańsk](#), [Wrocław](#) and [Stralsund](#) town halls are remarkable examples of northern Brick Gothic built in the late 14th centuries. The [Belfry of Bruges](#) or [Brussels Town Hall](#), built during the 15th century, are associated to the increasing wealth and power of the bourgeoisie in the late Middle Ages; by the 15th century, the traders of the trade cities of [Burgundy](#) had acquired such wealth and influence that they could afford to express their power by funding lavishly decorated buildings of vast proportions. This kind of expressions of secular and economic power are also found in other late mediaeval commercial cities, including the [Llotja de la Seda](#) of [Valencia](#), Spain, a purpose built silk exchange dating from the 15th century, in the partial remains of [Westminster Hall](#) in the Houses of Parliament in [London](#), or the [Palazzo Pubblico](#) in Siena, Italy, a 13th-century town hall built to host the offices of the then prosperous republic of [Siena](#). Other Italian cities such as [Florence](#) ([Palazzo Vecchio](#)), [Mantua](#) or [Venice](#) also host remarkable examples of secular public architecture.

By the late Middle Ages university towns had grown in wealth and importance as

well, and this was reflected in the buildings of some of Europe's ancient universities. Particularly remarkable examples still standing nowadays include the [Collegio di Spagna](#) in the [University of Bologna](#), built during the 14th and 15th centuries; the [Collegium Carolinum](#) of the University of Prague in Bohemia; the [Escuelas mayores](#) of the [University of Salamanca](#) in Spain; the chapel of [King's College, Cambridge](#); or the [Collegium Maius](#) of the [Jagiellonian University](#) in [Kraków, Poland](#).

In addition to monumental secular architecture, examples of the Gothic style in private buildings can be seen in surviving medieval portions of cities across Europe, above all the distinctive [Venetian Gothic](#) such as the [Ca' d'Oro](#). The house of the wealthy early 15th-century merchant [Jacques Coeur](#) in [Bourges](#), is the classic Gothic bourgeois mansion, full of the asymmetry and complicated detail beloved of the Gothic Revival.^[29]

Other cities with a concentration of secular Gothic include [Bruges](#) and [Siena](#). Most surviving small secular buildings are relatively plain and straightforward; most windows are flat-topped with [mullions](#), with pointed arches and vaulted ceilings often only found at a few focal points. The country-houses of the nobility were slow to abandon the appearance of being a castle, even in parts of Europe, like England, where defence had ceased to be a real concern. The living and working parts of many monastic buildings survive, for example at [Mont Saint-Michel](#).

Exceptional works of Gothic architecture can also be found on the islands of [Sicily](#) and [Cyprus](#), in the walled cities of Nicosia and Famagusta. Also, the roofs of the [Old Town Hall in Prague](#) and [Znojmo Town Hall Tower](#) in the [Czech Republic](#) are an excellent example of late Gothic craftsmanship.

Gothic survival and revival

In 1663 at the [Archbishop of Canterbury's](#) residence, [Lambeth Palace](#), a Gothic [hammerbeam roof](#) was built to replace that destroyed when the building was sacked during the [English Civil War](#). Also in the late 17th century, some discrete Gothic details appeared on new construction at [Oxford University](#) and [Cambridge University](#), notably on [Tom Tower](#) at [Christ Church, Oxford](#), by [Christopher Wren](#). It is not easy to decide whether these instances were *Gothic survival* or early appearances of *Gothic revival*.

Ireland was a focus for Gothic architecture in the 17th and 18th centuries. [Derry Cathedral](#) (completed 1633), [Sligo Cathedral](#) (c. 1730), and [Down Cathedral](#) (1790-1818) are notable examples. The term “Planter’s Gothic” has been applied to the most typical of these.^[30]

In England in the mid-18th century, the Gothic style was more widely revived, first as a decorative, whimsical alternative to [Rococo](#) that is still conventionally termed ‘Gothick’, of which [Horace Walpole’s Twickenham villa “Strawberry Hill”](#) is the familiar example.

Gothic Revival

The middle of the 19th century was a period marked by the restoration, and in some cases modification, of ancient monuments and the construction of Neo-Gothic edifices such as the nave of [Cologne Cathedral](#) and the [Sainte-Clotilde of Paris](#) as speculation of medieval architecture turned to technical consideration. While some credit for this new ideation can reasonably be assigned to German and English writers, namely [Johannes Vetter](#), Franz Mertens, and Robert Willis respectively, this emerging style’s champion was [Eugène Viollet-le-Duc](#), whose lead was taken by archaeologists, historians, and architects like [Jules Quicherat](#), [Auguste Choisy](#), and [Marcel Aubert](#).^[6] In the last years of the 19th century, a trend among study in art history emerged in Germany that a building, as defined by [Henri Focillon](#) was a interpretation of space.^[26] When applied to Gothic cathedrals, historians and architects used to the dimensions of 17th and 18th [Baroque](#) or [Neoclassical](#) structures, were astounded by the height and extreme length of the cathedrals compared to its proportionally modest width. [Goethe](#), in the preceding century, was mesmerized by the space



Elizabeth Tower (Big Ben)

within a Gothic church and succeeding historians like [Dehio](#), Walter Ueberwasser, [Paul Frankl](#), and Maria Velte sought to rediscover the methodology used in their construction by making measurements and drawings of the buildings, and reading and making conjectures from documents pertaining to their construction.^[31]

In England, partly in response to a philosophy propounded by the [Oxford Movement](#) and others associated with the emerging revival of 'high church' or [Anglo-Catholic](#) ideas during the second quarter of the 19th century, neo-Gothic began to become promoted by influential establishment figures as the preferred style for ecclesiastical, civic and institutional architecture. The appeal of this [Gothic revival](#) (which after 1837, in Britain, is sometimes termed [Victorian Gothic](#)), gradually widened to encompass "low church" as well as "high church" clients. This period of more universal appeal, spanning 1855–1885, is known in Britain as [High Victorian Gothic](#).

The [Houses of Parliament](#) in London by Sir [Charles Barry](#) with interiors by a major exponent of the early Gothic Revival, [Augustus Welby Pugin](#), is an example of the Gothic revival style from its earlier period in the second quarter of the 19th century. Examples from the High Victorian Gothic period include [George Gilbert Scott's](#) design for the [Albert Memorial](#) in London, and [William Butterfield's](#) chapel at [Keble College, Oxford](#). From the second half of the 19th century onwards it became more common in Britain for neo-Gothic to be used in the design of non-ecclesiastical and non-governmental buildings types. Gothic details even began to appear in working-class housing schemes subsidised by philanthropy, though given the expense, less frequently than in the design of upper and middle-class housing.

In France, simultaneously, the towering figure of the Gothic Revival was [Eugène Viollet-le-Duc](#), who outdid historical Gothic constructions to create a Gothic as it ought to have been, notably at the fortified city of [Carcassonne](#) in the south of France and in some richly fortified keeps for industrial magnates. Viollet-le-Duc compiled and coordinated an *Encyclopédie médiévale* that was a rich repertory his contemporaries mined for architectural details. He effected vigorous restoration of crumbling detail of French cathedrals, including the Abbey of Saint-Denis and

famously at Notre Dame de Paris, where many of whose most “Gothic” gargoyles are Viollet-le-Duc’s. He taught a generation of reform-Gothic designers and showed how to apply Gothic style to modern structural materials, especially [cast iron](#).

In Germany, the great cathedral of [Cologne](#) and the [Ulm Minster](#), left unfinished for 600 years, were brought to completion, while in Italy, [Florence Cathedral](#) finally received its polychrome Gothic façade. New churches in the Gothic style were created all over the world, including Mexico, [Argentina](#), Japan, Thailand, India, Australia, New Zealand, Hawaii and South Africa.

As in Europe, the United States, Canada, Australia and New Zealand utilised Neo-Gothic for the building of universities, a fine example being the [University of Sydney](#) by [Edmund Blackett](#). In Canada, the Canadian [Parliament Buildings](#) in [Ottawa](#) designed by [Thomas Fuller](#) and [Chilion Jones](#) with its huge centrally placed tower is influenced by Flemish Gothic buildings.

Although falling out of favour for domestic and civic use, Gothic for churches and universities continued into the 20th century with buildings such as [Liverpool Cathedral](#), the [Cathedral of Saint John the Divine](#), New York and [São Paulo Cathedral](#), Brazil. The Gothic style was also applied to iron-framed city skyscrapers such as [Cass Gilbert’s Woolworth Building](#) and [Raymond Hood’s Tribune Tower](#).

[Post-Modernism](#) in the late 20th and early 21st centuries has seen some revival of Gothic forms in individual buildings, such as the [Gare do Oriente](#) in Lisbon, Portugal and a finishing of the [Cathedral of Our Lady of Guadalupe](#) in Mexico.

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3. "Gotz" is rendered as "Huns" in Thomas Urquhart's English translation.

4. Notes and Queries, No. 9. 29 December 1849

5. Christopher Wren, 17th-century architect of St. Paul's Cathedral.

6. "pour terminer le haut de leurs ouvertures. La Compagnie a désapprouvé plusieurs de ces nouvelles manières, qui sont défectueuses et qui tiennent la plupart du gothique." Quoted in Fiske Kimball, *The Creation of the Rococo*, 1943, p 66.

7. "L'art Gothique", section: "L'architecture Gothique en Angleterre" by Ute Engel: L'Angleterre fut l'une des premières régions à adopter, dans la deuxième moitié du XIIème siècle, la nouvelle architecture gothique née en France. Les relations historiques entre les deux pays jouèrent un rôle prépondérant: en 1154, Henri II (1154–1189), de la dynastie Française des Plantagenêt, accéda au trône d'Angleterre." (England was one of the first regions to adopt, during the first half of the 12th century, the new Gothic architecture born in France. Historic relationships between the two countries played a determining role: in 1154, Henry II (1154–1189) became the first of the Anjou Plantagenet kings to ascend to the throne of England).

8. Banister Fletcher, *A History of Architecture on the Comparative Method*.

9. John Harvey, *The Gothic World*

10. Alec Clifton-Taylor, *The Cathedrals of England*

11. Nikolaus Pevsner, *An Outline of European Architecture*.

12. Warren, John (1991). "Creswell's Use of the Theory of Dating by the Acuteness of the Pointed Arches in Early Muslim Architecture". *Muqarnas*. BRILL. 8: 59–65 (61–63). doi:10.2307/1523154. JSTOR 1523154.

13. Petersen, Andrew (2002-03-11). *Dictionary of Islamic Architecture* at pp. 295-296. Routledge. ISBN 978-0-203-20387-3. Retrieved 2013-03-16.

14. Lang, David Marshall (1980). *Armenia: Cradle of Civilization*. Allen & Unwin. p. 223. With this experience behind him, it is not surprising that Trdat's creation of the Cathedral at Ani turned out to be a masterpiece. Even without its dome, the cathedral amazes the onlooker. Technically, it is far ahead of the contemporary Anglo-Saxon and Norman architecture of western Europe. Already, pointed arches and clustered piers, whose appearance together is considered one of the hallmarks of mature Gothic architecture, are found in this remote corner of the Christian East.

15. Kite, Stephen (September 2003). "'South Opposed to East and North': Adrian Stokes and Josef Strzygowski. A study in the aesthetics and historiography of Orientalism". *Art History*. 26 (4): 519. To Near Eastern scholars the Armenian cathedral at Ani (989–1001), designed by Trdat (972–1036), seemed to anticipate Gothic.

16. Stewart, Cecil (1959). *History of Architectural Development: Early Christian, Byzantine and Romanesque Architecture*. Longman. p. 80. The most important examples of Armenian architecture are to be found at Ani, the capital, and the most important of these is the cathedral. [...] The most interesting features of this building are its pointed arches and vaults and the clustering or coupling of the columns in the Gothic manner.

17.

Talbot Rice, David (1972). *The Appreciation of Byzantine Art*. Oxford University Press. p. 179. The interior of Ani cathedral, a longitudinal stone building with pointed vaults and a central dome, built about 1001, is astonishingly Gothic in every detail, and numerous other equally close parallels could be cited.

18. Scott, Robert A.: *The Gothic enterprise: a guide to understanding the Medieval cathedral*, Berkeley 2003, University of California Press, p. 113 ISBN 0-520-23177-5

19. Cf. Bony (1983), especially p.17

20. *Le genie architectural des Normands a su s'adapter aux lieux en prenant ce qu'il y a de meilleur dans le savoir-faire des batisseurs arabes et byzantins*”, *Les Normands en Sicile*, pp.14, 53-57.

21. Harvey, L. P. (1992). "Islamic Spain, 1250 to 1500". Chicago : University of Chicago Press. ISBN 0-226-31960-1; Boswell, John (1978). Royal Treasure: Muslim Communities Under the Crown of Aragon in the Fourteenth Century. Yale University Press. ISBN 0-300-02090-2.

22. Cannon, J. 2007. Cathedral: The Great English Cathedrals and the World that Made Them

23. Erwin Panofsky argued that Suger was inspired to create a physical representation of the Heavenly Jerusalem, although the extent to which Suger had any aims higher than aesthetic pleasure has been called into doubt by more recent art historians on the basis of Suger's own writings.

24. Wim Swaan, The Gothic Cathedral

25. While the engineering and construction of the dome of Florence Cathedral by Brunelleschi is often cited as one of the first works of the Renaissance, the octagonal plan, ribs and pointed silhouette were already determined in the 14th century.

26. *Warren, John (1991). "Creswell's Use of the Theory of Dating by the Acuteness of the Pointed Arches in Early Muslim Architecture". Muqarnas. BRILL. 8: 59–65. doi:10.2307/1523154. JSTOR 1523154.

27. "Architectural Importance". Durham World Heritage Site. Retrieved 2013-03-26.

28. The open-work spire was completed in 1890 to the original design.

29. Ching, Francis D.K. (2012). A Visual Dictionary of Architecture (2nd ed.). John Wiley & Sons, Inc. p. 6. ISBN 978-0-470-64885-8.

30. This does not happen in French or English Gothic and so to the British or French eye, to be a strange disregard for style.

31. The Zodiac comprises a sequence of twelve constellations which appear overhead in the Northern Hemisphere at fixed times of year. In a rural community with neither clock nor calendar, these signs in the heavens were crucial in knowing when crops were to be planted and certain rural activities performed.

32. Freiburg, Regensburg, Strasbourg, Vienna, Ulm, Cologne, Antwerp, Gdansk, Wrocław.

33. Begun in 1443. "House of Jacques Cœur at Bourges (Begun 1443), aerial sketch".
Liam's Pictures from Old Books. Retrieved 29 September 2007.

34.-Bob Hunter "Londonderry Cathedral". BBC.

